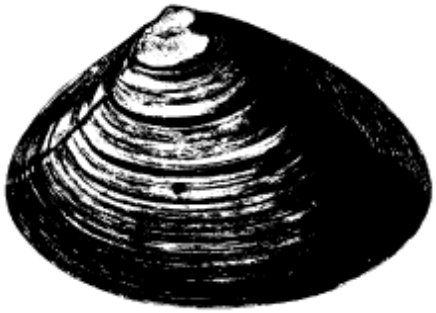

Last Revised: January 2000

Summary Status

Landings and Abundance Trends

Landings Data

Atlantic Surfclam

by

James Weinberg

Atlantic surfclams, *Spisula solidissima*, are distributed in the western North Atlantic from the southern Gulf of St. Lawrence to Cape Hatteras. Commercial concentrations are found primarily off New Jersey, the Delmarva Peninsula, and on Georges Bank. In the Mid-Atlantic region, surfclams are found from the beach zone to a depth of about 60 m. Beyond 40 m, however, abundance is low.

Surfclams reach harvestable size in about six years. Maximum size is about 22.5 cm (8.9 in.), but clams larger than 20 cm (7.9 in.) are rare. Surfclams are capable of reproduction in their first year of life, although full maturity may not be reached until the second year. Eggs and sperm are shed directly into the water column; recruitment to the bottom occurs after a planktonic larval period of about three weeks.

The fishery for surfclams in the Exclusive Economic Zone (EEZ) is managed under the Surfclam-Ocean Quahog Fishery Management Plan (FMP) of the Mid-Atlantic Fishery Management Council. Management measures include a total allowable annual catch (TAC) and an individual transferable quota (ITQ) system which was adopted under Amendment 8 to the FMP in 1990. Landings from the EEZ were 18,600 mt (meats) in 1997 and 18,200 mt in 1998 under a TAC of 19,800 mt per year. Fisheries taking place closer to shore are managed by state authorities.

The principal fishing gear for surfclams is the hydraulic clam dredge. Recreational and foreign fishing are insignificant. Total annual landings of surfclams averaged about 20,000 mt in the early 1960s, increased to over 40,000 mt in 1974, and then decreased to about 16,000 mt in 1979. Since 1983, total annual landings have ranged between 24,000-35,000 mt. Landings from state waters, primarily from New York and New Jersey, increased from 8,100 mt in 1989 to over 11,000 mt during 1992-1993 and have since averaged about 8,000 mt. Total combined landings from EEZ and state waters were 26,300 and 24,500 mt for 1997 and 1998, respectively.

In 1990, 128 vessels participated in the Mid-Atlantic EEZ fishery for surfclams. With the adoption of Amendment 8 to the FMP, the number of vessels in the fishery declined to 75 in

1991, and to 31 by 1998. Two management areas, New England and the Mid-Atlantic, were formerly identified, but were combined in Amendment 8. A single annual TAC now applies to the entire US EEZ. The Georges Bank region has been closed to the harvesting of surfclams since 1990, due to the risk of paralytic shellfish poison (PSP).

Biomass indices from research vessel surveys employing hydraulic dredge gear have loosely paralleled trends in regional landings. Some of the variability over time in the survey indices has been due to changes in dredge efficiency, rather than changes in clam biomass. Stock biomass (as indicated by the survey) and landings were low in the late 1970s following mass mortality of surfclams, due to a hypoxic event off the New Jersey coast. Surveys from 1978 onward indicated substantial recruitment in the area subjected to the clam kill, notably from the 1976 year class. The proportion of total Mid-Atlantic landings from off northern New Jersey increased with surfclam recruitment and biomass. From 1982-1999 the Mid-Atlantic survey index has been variable, and without a distinct trend.

Concentration of the offshore fishery in Delmarva waters between 1976 and 1980 resulted in a decline in harvestable biomass. There is currently little fishing effort off Delmarva and recent surveys indicate that abundance of clams is now relatively high. Clams in the Delmarva region have grown at substantially slower rates and have lower yields than those off New Jersey, due to high density and perhaps other factors.

Discarding of small surfclams was common in the early 1980s when a size limit of 12 cm (5.4 inches) was enforced. The size limit was suspended for the 1991 fishing season due to the relatively low abundance of prerecruit-sized clams and the likely incentive under Amendment 8 to target beds of larger surfclams. Recruitment occurred continuously during the 1980s and 1990s, although no year class has dominated the population in the manner that the 1976 year class did following the hypoxic event. Populations off New Jersey and the Delmarva peninsula are now composed of 15-20 year classes.

The most recent stock assessment indicates that the surfclam resource is at a high level of biomass and is under-exploited. In the EEZ, the annual quota is relatively small compared with the entire stock biomass of 1.3 million mt, and recent F levels (0.02) were substantially lower than the overfishing ($F_{THRESHOLD}$) level of 0.15. In the last decade, fishing has been concentrated off New Jersey. Catch per unit effort (bushels per hour fished) for the New Jersey area has declined slowly throughout the 1990s with a small increase in 1999.

For further information

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Summary Status

Long-term potential catch (MSY)	=	80,000 mt
Biomass corresponding to MSY	=	B_{MSY} = 630,000 mt
Minimum biomass threshold	=	½ B_{MSY} = 315,000 mt
Stock biomass in 1997-99	=	1,260,000 mt (Implies stock was not overfished)
F_{MSY}[1]	=	M = 0.15
F_{TARGET}	=	not specified
Overfishing definition	=	$F_{THRESHOLD}$[2] = 0.15 at 1997-99 biomass level
$F_{1997-99}$	=	0.02 (Implies overfishing was not occurring)
Age at 50% maturity	=	1 year
Size at 50% maturity	=	<4 cm (1.6 in.) shell length
Assessment level	=	Size structured (biomass model[3])
Management	=	Surfclam and Ocean Quahog FMP

M = 0.15 **$F_{0.1}$ = 0.19** **F_{max} = 0.70**

[1] M is currently used as a proxy.

[2] $F_{THRESHOLD}$ = F_{MSY} = 0.15 when biomass >= ½ B_{MSY}, declining linearly to zero at B=0.

[3] As per recommendations from 26th SAW; incorporates efficiency-corrected swept-area biomass estimates.

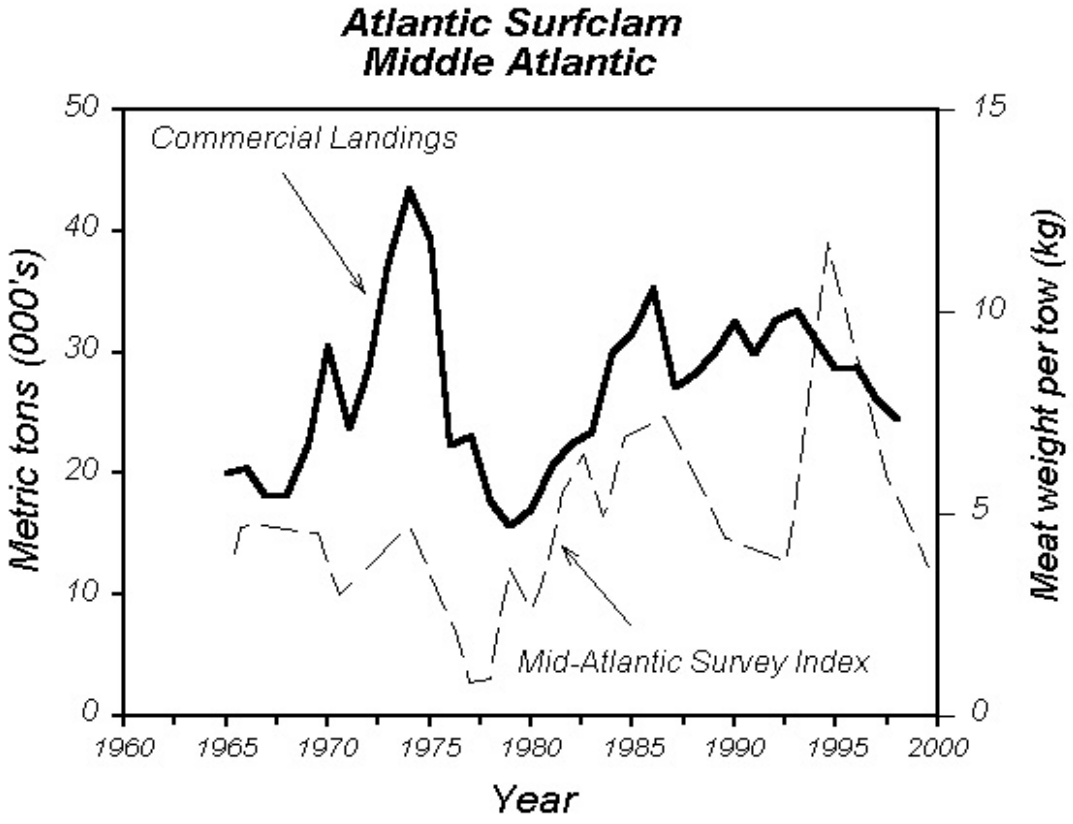

Table 31.1 Recreational and commercial landings (thousand metric tons, meats)

		Year									
Category	**1979-88 Average**	**1989**	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**
U.S. recreational	-	-	-	-	-	-	-	-	-	-	-
Commercial											
United States											
EEZ	19.6	21.9	24.0	20.6	21.7	21.9	21.9	19.6	19.8	18.6	18.2
State waters	5.6	8.1	8.5	9.4	11.0	11.6	9.1	9.1	9.0	7.7	6.3
Canada	-	-	-	-	-	-	-	-	-	-	-
Total nominal catch	25.2	30.0	32.5	30.0	32.7	33.5	31.0	28.7	28.8	26.3	24.5